

Old World Bluestems

Invasive species

Caucasian bluestem (*Bothriochloa bladhii*)
and **Yellow bluestem** (*B. ischaemum*)

Background, Life History

Two species are considered old world bluestems: Caucasian bluestem, a warm-season perennial grass native to subtropical Asia and Africa, and yellow bluestem from southern Europe and Asia. Both were brought to the United States in the early 1900s as a forage grass and as erosion control. These grasses are less palatable to cattle than our native warm-season grasses and not as nutritious, but their use is promoted due to their ability to withstand close grazing. They have proven, however, to be highly invasive in neighboring states, and their use should be strongly discouraged. Caucasian bluestem has currently escaped cultivation in at least eight counties in Missouri, and it is also found in neighboring Kansas and Oklahoma, as well as other southern states. Yellow bluestem has been documented to be escaping in Howell County, and is likely found in other counties. It has also escaped in Kansas, and throughout the southern United States. In spite of its invasive nature, yellow bluestem sometimes is recommended to Missouri cattle ranchers.

Caucasian bluestem is a small blue-gray graceful grass, with flowering stems that can reach 1 to 3 feet high. It forms dense tufts of blue-green smooth leaf blades, up to 12 inches long and less than ¼ inch wide with a thickened mid-vein. The nodes are purple-tinged and may be smooth or with short hairs. It blooms in Missouri in late June to July, far earlier than our native bluestems. The inflorescence features side branches that are shorter than the central stem, and resembles a miniature version of Johnson grass (which blooms at the same time).

Yellow bluestem is larger than Caucasian bluestem, and has yellow-green leaves that are usually smooth. The sheaths are rounded, and blades are flat or folded. The nodes may be smooth or with short hairs. The silvery, reddish-purple inflorescence is similar to that of Caucasian bluestem except that the length of each inflorescence side branch exceeds the length of the central stem. It blooms at the same time as the Caucasian bluestem.

Both of these grasses are spread by root and seed, and how long their dormant seed remains viable in the seed bank is unknown. Because foragers and grazers prefer native grasses, the old world bluestems have a competitive advantage. Additionally, they can cause an altered carbon-to-nitrogen ratio that inhibits the growth of native plants.



Caucasian bluestem



Bob Hams, University of Texas

The length of the silvery, reddish-purple inflorescence branches of yellow bluestem exceeds that of the central stem.



Susan Farrington

The side branches of the Caucasian bluestem are shorter than the central stem.



Bob Hams, University of Texas

The leaves of yellow bluestem shown here often have long hairs at the base of the blade. Both grasses may have hairy nodes.

Pathways for Spread and Impacts

While these grasses are used as fodder, they are not as nutritious as native-warm season grasses. Both of these old world bluestems have been shown to alter soil function and biota, thereby suppressing the growth of native grasses. They form much thicker sod than native grasses, making them unsuitable for quail nesting or cover. They are capable of moving from disturbed roadsides and pastures to high-quality prairie and glade habitats, and are very difficult to eradicate once established. Dr. Walter Fick of Kansas State University warns that if left uncontrolled, they have the potential to completely take over our native grasslands.

Control

Studies are ongoing to find an effective control for old world bluestems. They are well adapted to spring burning and will tolerate repeated mowing better than our native bluestem grasses. There are no known biological controls. Chemical application, therefore, has shown to be the only effective method of control at this time.

Glyphosate (2 to 4 lbs. per acre) is reasonably effective, but treatments must be repeated, and glyphosate also kills native grasses and vegetation. Imazapyr (1 to 1.25 lbs. per acre) has been shown to be effective, and native grasses

show more tolerance to it than to glyphosate. To prevent collateral damage to native vegetation, early detection and eradication of old world bluestems is extremely important. Re-seeding with native grasses following treatment may be necessary.

Alternative Native Plants

Big bluestem and little bluestem

For Additional Information

www.fs.fed.us/r9/forests/marktwain/projects/projects/00601/ea_app.html
www.kswildflower.org/grass_details.php?grassID=2
www.wnmu.edu/academic/nspages2/gilaflora/bothriochloa_bladhii.html
eco.confex.com/eco/2008/techprogram/P14608.HTM
www.prairiesource.com/newsletters/92_fall02.htm
www.biosci.utexas.edu/prc/DigFlora/KR/BOISS-morph.html
www.texasinvasives.org/invasives_database/detail.php?symbol=BOISS
plant-materials.nrcs.usda.gov/releases/discontinued.html

www.MissouriConservation.org

For more information or to report a population, contact your local Missouri Department of Conservation office, e-mail WildlifeDivision@mdc.mo.gov, or write:

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